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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/783,163	02/13/2001	Akira Kagami	36992.00067	2732

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EXAMINER	
SIDDIQI, MOHAMMAD A	

ART UNIT	PAPER NUMBER
2154	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/783,163	KAGAMI ET AL.	
	Examiner	Art Unit	
	Mohammad A. Siddiqi	2154	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-21 are presented for examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/14/2005 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Axberg et al. (6,253,240) (hereinafter Axberg).

5. As per claim 1, Axberg discloses a storage management service system (101, fig 1, col 2, lines 59-61) comprising:

a storage on demand (SoD) center system (100, fig 1, col 2, lines 65-67);

a storage subsystem including a plurality of storage devices (and a plurality of I/O ports (130,131, fig 1 and 514, fig 5A, col 5, lines 50-59, it is inherent in the context of storage network because a port is an interface through which data are sent and received); and

a host computer coupled to (110, fig 1, col 3, lines 1-9, host computer system), said storage subsystem (100, 104, fig 1, col 2, lines 65-67 and col 3, lines 1-15, storage network), and to said SoD center system (col 2, lines 65-67 and col 3, lines 1-15, storage network); wherein

said SoD center system is remote from the host computer and the storage subsystem (col 2, lines 65-67 and col 3, lines 1-15, host computer system);

said SoD center system receives input of an SoD demand (col 2, lines 65-67 and col 3, lines 1-15, local agents 111-113 in fig 1, receive and response to the request), said SoD demand including a request to specify a

storage resource (col 3, lines 15-23, local agents 111-113 in fig 1, receive and response to the request), sends said demand to said storage subsystem (col 3, lines 15-26, local agents 111-113 in fig 1, receive and response to the request for accessing individual devices) to manage usability of the storage resource, and is capable of managing accessibility of the storage resource by the host compute (col 3, lines 1-9, host computer collates the data to produce a coherent view of the data storage network and col 10, lines 51-58. Central Manager); and

said storage subsystem receives said demand (col 3, lines 10-26, local agent operates as a server), makes said storage resource usable (device attached to local agent, 111, 130, 110, 120-124, fig 1, col 3, lines 10-26), and sends a management result to the SoD center system (local agent col 3, lines 10-26).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Shank et al. (6,145,028) (hereinafter Shank) in view of Axberg et al. (6,253,240) (hereinafter Axberg).

8. As per claim 1, Shank discloses a storage management service system, comprising:

a storage on demand (SoD) center system (100, fig 1 col 3, lines 10-16);

a storage subsystem including a plurality of storage devices (100, fig 1 col 3, lines 10-16) and a plurality of I/O ports (102, 104, fig 1, col 6, lines 58-60); and

a host computer coupled to (102, 104, fig 1, col 3, lines 11-15), said storage subsystem (100, 104, fig 1, col 3, line s11-15), and to said SoD center system (102, fig 1, col 3, lines 11-15); wherein

said SoD center system receives input of an SoD demand (506, fig 5, col 4, lines 11-21), said SoD demand including a request to specify a storage resource (translates, col 4, lines 11-16), sends said demand to said storage subsystem (col 4, lines 11-16); and wherein said storage subsystem receives said demand (col 6, lines 4-15), makes said storage resource usable (510,512, fig 5), and sends a management result to the SoD center system (col 6, lines 4-15).

Shank does not disclose said Sod center system is remote from the host computer and the storage subsystem; storage subsystem to manage usability of the storage resource, and is capable of managing accessibility of the storage resource by the host computer. Axberg discloses said SoD center system is remote from the host computer and the storage subsystem (col 2, lines 65-67 and col 3, lines 1-15, host computer system); storage subsystem (col 3, lines 15-26, local agents 111-113 in fig 1, receive and response to the request for accessing individual devices) to manage usability of the storage resource, and is capable of managing accessibility of the storage resource by the host compute (col 3, lines 1-9, host computer collates the data to produce a coherent view of the data storage network and col 10, lines 51-58, Central Manager). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of Shank and Axberg. The motivation would have been to support the development, maintain and manage a network of data storage devoices attached to multiple computer systems.

9. As per claim 2, Shank discloses request includes an 1/0 path setting to be updated (col 8, lines 7-17), said SoD center system sends an 1/0 path setting request to said host computer (col 4, lines 1-10);

and wherein said host computer requests an application (132, fig 1,col 4, lines 1-3) to update an 1/0 path setting based upon said 1/0 path setting system request, receives an update result from said operating system, sends a setting result to said SoD center system (col 7, lines 17-28). Shank fails to disclose operating system performing the above task. Shank fails to disclose an operating system performing said above functions. However this is well known in the art, for example, Axberg discloses operating system performing said above tasks (321 and 331, fig 3, col 9, lines 51-53 and elements, fig 5A). It would have been obvious tone of ordinary skill in the art at the time invention was made to combine the teachings of Shank and Axberg. The motivation would have been to have a system where an operating system communicates with the devices.

10. As per claim 3, Shank discloses host computer and said storage subsystem are coupled by physical and logical connections between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 Ports (102, 104, fig 1, col 6, lines 58-63).

11. As per claim 4, the claim is rejected for the same reasons as claim 1, above. In addition Shank discloses host computer (102, fig 1) and said storage subsystem (100 fig 1) are coupled by a network switch (col 3, lines

40-45, RAID) between at least one of a plurality of host 1/0 controllers and at least one of a plurality of subsystem 1/0 ports (col 4, lines 62-66).

12. As per claim 5, the claim is rejected for the same reasons as claim 4, above.

13. As per claim 6, the claim is rejected for the same reasons as claims 1 and 2, above. In addition, Shank discloses a storage apparatus comprising:

memory (124, fig 1);

a plurality of storage devices (100, fig 1, col 3, lines 10-16);

a plurality of 1/0 ports providing an interface to said plurality of storage devices (102,104, fig 1, col 6, lines 58-63);

a device management store (col 2, lines 18-28), in which a status of said a plurality of storage devices is stored (col 2, lines 18-28, and col 4, lines 24-27), and an I/O port management store (col 6, lines 58-63), in which a status of said plurality of I/O ports is stored (102, 104, fig 1, col 6, lines 58-63), and

a storage resource management processor (126, fig 1, col 4, lines 1-14); wherein

said storage management processor receives a demand for storage resources (126, fig 1, col 4, lines 1-14), the demand specifying one of said

storage devices (col 2, lines 18-28, and col 4, lines 24-27), updates said device management store and said I/O port management store (col 2, lines 18-28, and col 4, lines 24-27), and sends a management result responsive to said demand (col 6, lines 4-15); and wherein updates to at least one of a plurality of paths connecting to storage resources allocated from at least one of said plurality of storage devices are automatically defined to an application (132, fig 1, col 4, lines 1-16) of a use machine (col 2, lines 18-28, and col 6, lines 58-67).

14. As per claim 7, Shank discloses plurality of storage devices that comprising at least one of a magnetic disk, an optical disk, a magnetic -optical disk, and semiconductor memory (RAID, 100, fig 1, col 3, lines 41-44).

15. As per claim 8, The claim is rejected for the same reasons as claim 6 above. In addition Axberg discloses a communications interface to a network, said storage management processor receiving said demand for storage resources over said network (110, fig 1, col 2, lines 65-67).

16. As per claim 9, the claim is rejected for same reasons as claims 6 and 4, above.

17. As per claims 10 and 19, claims are rejected for the same reasons as claim 6, above. In Addition, Shank discloses receiving at said host an I/O path setting request from said center system (col 8, lines 4-27), said I/O path setting request specifying a path to a resource in said storage subsystem allocated for use by said host (col 8, lines 4-27);

requesting an application resident in said host (102, 132, fig 1) to update an I/O path setting based upon said I/O path setting request (col 8, lines 4-27);

receiving an update result from said application (102, 132, fig 1, col 4, lines 1-16); and

sending a setting result to said center system based upon said update result (status of the storage devices, col 4, lines 1-16).

18. As per claim 11, Shank discloses storing an indication that a particular 1/0 port in said storage subsystem is accessible to a particular host 1/0 controller (col 6, lines 1-15).

19. As per claims 12 and 20, Shank discloses receiving at said center system computer an input of a demand for storage resources (col 2, lines 19-28);

determining whether sufficient resources exist to meet said demand (lookup, col 6, lines 20-23);

sending said demand for storage resources to said storage subsystem (col 6, lines 4-15), if sufficient resources were determined to exist (lookup, col 6, lines 20-23);

receiving from said storage subsystem a management result (col 8, lines 4-27), said management result indicating whether storage resources have been successfully allocated in accordance with said demand (col 8, lines 4-27);

storing said management result (configuration file, col 8, lines 2-27);

determining whether said demand includes an 1/0 path setting request (col 6, lines 2-15);

sending said 1/0 path setting request to said host computer, if said demand included an 1/0 path setting request, receiving said setting result from said host (col 6, lines 2-15); and

storing said setting result (configuration file, 142, 140, fig 1, col 8, lines 2-27).

20. As per claim 13, Shank discloses receiving said demand for storage resources at said storage subsystem (col 2, lines 19-28);

determining whether said demand includes a command to make at least one of a plurality of installed devices available (col 4, lines 3-16);

updating a device management store (col 8, lines 2-27, if said demand includes a command to make at least one of a plurality of installed devices available (col 7, lines 17-24);

updating an I/O port management store (col 6, lines 58-67)

and sending a resource management result to said center system (col 6, lines 2-42).

21. As per claim 14, Shank discloses storing an indication that a particular device is usable (col 8, lines 1-20 and col 5, lines 30-35).

22. As per claim 15, Shank discloses storing an indication that a particular 1/0 port is usable (col 6, lines 58-67 and col 5, lines 30-35).

23. As per claim 16, Shank discloses receiving at said storage subsystem an 1/0 command to access storage resources from said host (col 2, lines 19-28);

determining whether storage resources requested by said 1/0 command are usable (col 5, lines 30-35);

performing said i/o command, if said storage resources requested by said 1/0 command are usable (col 8, lines 1-20 and col 6, lines 58-67);

otherwise rejecting said 1/0 command; and sending an 1/0 result to said host (col 8, lines 1-20 and col 6, lines 58-67).

24. As per claim 17, Shank discloses searching said device management store to determine whether devices requested in said 1/0 command are usable (lookup, col 6, lines 20-23 and 58 -67).

25. As per claim 18, Shanks discloses searching said 1/0 port management table to determine whether 1/0 ports requested in said 1/0 command are usable and whether devices requested in said 1/0 command are accessible via 1/0 ports requested in said 1/0 command (col 6, lines 58-67 and col 8, lines 1-26).

26. As per claim 21, Shank discloses wherein said storage resource includes said storage devices (100, fig 1, col 3, lines 35-45).

Response to Arguments

27. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad A. Siddiqi whose telephone number is (571) 272-3976. The examiner can normally be reached on Monday -Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John A. Follansbee can be reached on (571) 272-3964. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAS

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